

## CLAIMS

What is claimed is:

1. A method of reproducing AV data in an interactive mode using a markup document, the method comprising:  
buffering the markup document to preload the markup document; and  
outputting buffering state information of the markup document in response to a report signal.
2. The method of claim 1, further comprising generating the report signal to determine the buffering state information of the markup document.
3. The method of claim 2, wherein the generating of the report signal comprises generating the report signal using an application program interface (API).
4. The method of claim 3, wherein the API includes at least one of a file path and an attribute of the markup document as a parameter.
5. The method of claim 3, wherein the API serves to determine whether the buffering of the markup document to preload the markup document succeeded or failed, or whether the markup document is still being buffered.
6. The method of claim 2, wherein the generating of the report signal comprises generating the report signal using an [obj].isCached(URL, resType) API, where the URL is a parameter indicating a file path of the markup document and the resType is a parameter indicating an attribute of the markup document.
7. The method of claim 1, wherein the outputting of the buffering state information includes returning a value of 0 in response to the markup document being successfully preloaded, returning a value of 1 in response to the markup document not being successfully preloaded, and returning a value of 2 in response to the markup document still being preloaded.
8. The method of claim 1, further comprising reproducing the AV data in the interactive mode using the preloaded markup document.

9. A method of managing a markup document for use in reproducing AV data in an interactive mode, the method comprising:

buffering the markup document to preload the markup document in response to a fetch signal;

outputting a buffering state of the markup document in response to a report signal;

staging the markup document for decoding in response to a retrieve signal; and

deleting the markup document in response to a discard signal.

10. The method of claim 9, further comprising marking the markup document as a document no longer in use in response to a release signal.

11. The method of claim 9, further comprising issuing a response indicating whether a command to preload the markup document included in the fetch signal has been successfully transmitted.

12. The method of claim 9, wherein the outputting of the buffering state comprises returning a signal indicating whether preloading of the markup document has been completed.

13. The method of claim 9, wherein the outputting of the buffering state comprises returning a signal indicating whether preloading of the markup document succeeded or failed, or whether the preloading of the markup document is still being conducted.

14. A method of managing a markup document for use in reproducing AV data in an interactive mode, the method comprising:

generating a fetch signal to preload the markup document;

generating a report signal to determine a buffering state of the markup document;

generating a retrieve signal to stage the markup document for decoding; and

generating a discard signal to delete the markup document.

15. The method of claim 14, further comprising generating a release signal in response the markup document no longer being presented.

16. The method of claim 14, wherein the generating of the report signal comprises generating the report signal using an application program interface (API) to determine one or more of whether preloading of the markup document succeeded, whether the markup document

is still being preloaded, and whether the preloading of the markup document has been completed.

17. A computer readable medium encoded with operating instructions for implementing a method of reproducing AV data in an interactive mode using markup document, performed by a computer, the method comprising:

buffering the markup document to preload the markup document; and  
outputting buffering state information of the markup document in response to a report signal.

18. A computer readable medium encoded with operating instructions for implementing a method of reproducing AV data in an interactive mode using markup document, performed by a computer, the method comprising:

buffering the markup document to preload the markup document in response to a fetch signal;  
outputting the a buffering state of the markup document in response to a report signal;  
staging the markup document for decoding in response to a retrieve signal; and  
deleting the markup document in response to a discard signal.

19. A computer readable medium encoded with operating instructions for implementing a method of reproducing AV data in an interactive mode using markup document, performed by a computer, the method comprising:

generating a fetch signal to preload the markup document;  
generating a report signal to determine a buffering state of the markup document;  
generating a retrieve signal to stage the markup document for decoding; and  
generating a discard signal to delete the markup document.

20. A method in a computer system to process AV data in an interactive mode using a markup document, the method comprising:

controlling a content decoder to generate a report signal to determine buffering state information of the markup document; and

in response to the report signal, controlling a buffer manager to issue a response indicating whether preloading of the markup document succeeded or failed, or whether the preloading of the markup document is still being conducted.